

What is claimed is:

1. An ignition composition effective to form an igniter substance having a surface area, the ignition composition including a fuel and an oxidizer and further comprising:

a polymeric binder; and

a blowing agent effective, upon decomposition, to increase the surface area of the igniter substance;

wherein the ignition composition, upon being heated to a predetermined temperature, forms an igniter substance which is porous and capable of adhering to an associated inflator apparatus surface.

2. The ignition composition of claim 1, wherein the fuel comprises a powdered metal.

3. The ignition composition of claim 1, wherein the fuel is selected from the group consisting of aluminum, magnesium, alloys of aluminum and magnesium, and combinations thereof.

4. The ignition composition of claim 1, wherein the fuel comprises an alloy of aluminum and magnesium.

5. The ignition composition of claim 1, wherein the fuel comprises a metalloid.
6. The ignition composition of claim 1, wherein the fuel comprises boron.
7. The ignition composition of claim 1, wherein the fuel comprises a gas producing organic compound.
8. The ignition composition of claim 1, wherein the fuel comprises guanidine nitrate.
9. The ignition composition of claim 1, wherein the polymeric binder is selected from the group consisting of modified cellulose polymers, acrylate polymers, acrylamide polymers, and combinations thereof.
10. The ignition composition of claim 1, wherein the polymeric binder comprises a modified cellulose polymer including hydroxypropyl cellulose.

11. The ignition composition of claim 1, wherein the blowing agent is selected from the group consisting of aminoguanidine bicarbonate, ammonium oxalate, azodicarbonamide, ammonium carbonate, ammonium carbamate, ammonium bicarbonate, 4,4'-oxydibenzene sulfonyl hydrazide, and combinations thereof.

12. The ignition composition of claim 1, wherein the blowing agent comprises aminoguanidine bicarbonate.

13. The ignition composition of claim 1, wherein the ignition composition upon being heated to a temperature of between about 130°C and about 170°C forms the porous igniter substance.

14. The ignition composition of claim 1, wherein the associated surface is selected from the group consisting of at least a portion of a surface of a gas generant wafer or tablet, at least a portion of an interior surface of an inflator device, at least a portion of a surface of an electrical squib, at least a portion of a surface of a damper pad, and combinations thereof.

15. A gas generant material for use in an automotive safety restraint system comprising:

the ignition composition of claim 1 applied to at least a portion of a surface of the gas generant material;

wherein the ignition composition, upon being heated to a predetermined temperature, forms a porous igniter coating that adheres to at least a portion of the surface of the gas generant material.

16. A hybrid gas storage container for use in an automotive safety restraint system comprising:

the ignition composition of claim 1 applied to an inner surface of the hybrid gas storage container;

wherein the ignition composition, upon being heated to a predetermined temperature, forms a porous igniter coating that adheres to the inner surface of the hybrid gas storage container.

17. A damper pad for use in an automotive safety restraint system comprising:

the ignition composition of claim 1 applied to at least a portion of a surface thereof;

wherein the ignition composition, upon being heated to a predetermined temperature, forms a porous igniter coating that adheres to at least a portion of the surface of the damper pad.

18. An ignition composition effective to form an igniter substance having a surface area, the ignition composition comprising:

about 15 to about 50 composition weight percent of a fuel;

about 50 to about 85 composition weight percent of an oxidizer;

about 1 to about 20 composition weight percent of a polymeric binder;

and

about 1 to about 20 composition weight percent of a blowing agent effective, upon decomposition, to increase the surface area of the igniter substance;

wherein the ignition composition, upon being heated to a predetermined temperature, forms an igniter substance which is porous and capable of adhering to an associated inflator apparatus surface.

19. The ignition composition of claim 18, wherein the fuel is selected from the group consisting of metal fuels, metalloid fuels, gas generating organic fuels, and combinations thereof.

20. The ignition composition fo claim 18, wherein the fuel comprises a metal fuel selected from the group consisting of aluminum, magnesium, alloys of aluminum and magnesium, and combinations thereof.

21. The ignition composition of claim 18, wherein the fuel comprises an alloy of aluminum and magnesium.

22. The ignition composition of claim 21, wherein the fuel further comprises boron.

23. The ignition composition of claim 18, wherein the oxidizer is potassium nitrate.

24. The ignition composition of claim 18, wherein the polymeric binder is hydroxypropyl cellulose.

25. The ignition composition of claim 18, wherein the polymeric binder is an aqueous emulsion of polyacrylate polymers.

26. The ignition composition of claim 18, wherein the blowing agent is aminoguanidine bicarbonate.

27. The ignition composition of claim 18, further comprising a desensitizing agent.

28. The ignition composition of claim 26, wherein the ignition composition comprises a desensitizing agent in an amount of up to about 10 composition weight percent.

29. The ignition composition of claim 27, wherein the desensitizing agent is bentonite clay.